

## Theoretical / Computational Studies of X-Ray Absorption Spectroscopy

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X-ray absorption is described in terms of electronic excitations from core levels to empty bands in electron theory. The most important advantage of x-ray absorption spectroscopy (XAS) in materials physics is that, by tuning the energy and polarization of photon, electronic transitions specific to particular element, orbitals, symmetry, and order states can be selectively measured. Recently, highly intense and tunable synchrotron radiation light sources have been available, and XAS related experiments have been extensively reported. In this talk, I shall outline the fundamentals of XAS and introduce some of our recent theoretical/computational studies of XAS, including optical activity in broken-inversion systems and core-hole effects on the near-edge structure.

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